

## Section 6-7: Problem Solving Skills: Patterns and Functions

**By the end of this lesson, you should be able to answer:**

- How do you find patterns when given a function?
- How do you find the function when given a pattern?

**Where you might see this in the real world:**

- Offices, chemistry, landscaping

Throughout the last few lessons, we have been working with creating tables from a given equation. If the equation represents a function, we can write it in function notation, replacing the  $y$  with our function notation.

All functions will form patterns. That means that anytime we see a pattern, we can work on creating a function to represent it. To work with these types of problems, we need to work with the Five-Step Plan:

1. **Read:** Ask questions to yourself to help understand the problem.
2. **Plan:** Come up with a way to go about solving the problem from previous methods you have learned.
3. **Solve:** Follow through the steps to solve the problem.
4. **Answer:** Write out your answer, making sure to label it correctly. Refer back to the original problem to find the units.
5. **Check:** Review your work and make sure your answer makes sense in the situation. If you are looking for the number of rolls you would have to buy as being  $-10$ , that does not make sense.

Example 1: An appliance store offers its sales staff a choice of weekly earning plans: a base salary of \$200 plus 7% commission on their sales or just 12% commission on their sales. What is the minimum amount of sales for which the commission only plan earns the salesperson a higher weekly income than the base salary plan?

Example 2: Which of the following equations fits the table?

x	0	1	2	3	4
y	0	3	12	27	48

a.  $y = x^3$

b.  $y = 2x^3$

c.  $y = 3x^3$

d.  $y = 3x^2$

The main thing here is to try and find a pattern that exists between our two variables. In example 2, we need to figure out what we do to x to get y. We can try multiplying, adding, squaring, etc. In this case, there are some possible equations given to us, which means we only have to test the points into each equation.

Example 3: Use the table to write a function rule.

x	2	4	6	8	10
y	5	9	13	17	21

Homework:

**"You can't wait for inspiration. You have to go after it with a club."  
- Jack London**